PENGARUH PENAMBAHAN PEWARNA IRON OXIDE PADA KOMPOSIT PLASTIK *POLYPROPYLENE* (PP)-KARET TERHADAP KEKUATAN LENTUR DAN KETAHANAN PEMAPARAN CUACA

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan pewarna *iron oxide* terhadap kekuatan lentur dan ketahanan pemaparan cuaca komposit plastik *Polypropylene* (PP)-karet ban bekas dengan metode *pressured sintering.*

Plastik *recycle* jenis PP, karet ban bekas dan pewarna *iron oxide* digunakan dalam penelitian ini. Komposisi pewarna *iron oxide* divariasikan dengan nilai fraksi volume 0%, 1%, 2%, 3% dan 4% sedangkan fraksi volume PP:karet tetap yaitu 70%:30%. Tekanan pengepresan dilakukan dengan metode *uni-axial single action* vertikal sebesar 0,2 MPa konstan dengan temperatur 130^{o}C selama 10 menit. Pengujian kekuatan lentur mengacu pada ASTM D790 dan pengujian pemaparan cuaca mengacu pada ASTM D1435

Hasil penelitian menunjukkan bahwa penambahan pewarna *iron oxide* secara visual akan meningkatkan ketahanan pemaparan cuaca. Kekuatan lentur komposit akan meningkat dengan penambahan pewarna *iron oxide* 1% dan 2% kemudian turun pada penambahan pewarna *iron oxide* 3% dan 4%. Kekuatan lentur maksimal terjadi pada penambahan pewarna *iron oxide* 2% fraksi volume yaitu sebesar 20,91 MPa.

Kata Kunci: pewarna *iron oxide*, pemaparan cuaca, kekuatan bending.

EFFECT OF PIGMENT IRON OXIDE ADDITION TO POLYPROPYLENE (PP) PLASTIC-RUBBER COMPOSITES TOWARD BENDING STRENGTH AND WEATHER EXPOSURE ENDURANCE

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Abstract

This research aims to determine the effect of pigment iron oxide addition toward bending strength and weather exposure endurance on Polypropylene (PP) plastic-tire rubber composite produced by pressured sintering method.

PP type of recycled plastic, tires rubber and pigment iron oxide were used in this study. Pigment iron oxide composition was varied with the volume fraction value of 0%, 1%, 2%, 3% and 4%, while the volume fraction of PP:rubber fixed at 70%:30%. Pressing pressure was conducted using uni-axial single action vertical at constant value of 0.2 MPa and at temperature of 130°C for 10 minutes. Bending strength test refers to ASTM D790 and weather exposure endurance test refers to ASTM D1435.

The results shows that the addition of pigment iron oxide visually will enhance the weather exposure durabilty. Composite bending strength will be increased by the addition of pigment iron oxide of 1% and 2% then descend upon the addition of pigment iron oxide of 3% and 4%. Maximum bending strength occurs upon the addition of pigment iron oxide of 2% with volume fraction at 20.91 MPa.

Keywords : pigment iron oxide, weather exposure endurance, bending strength.